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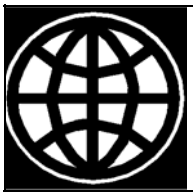

Social Protection Discussion Paper Series

Social Security Coverage in Latin America

Rafael Rofman

May 2005

Social Protection Unit

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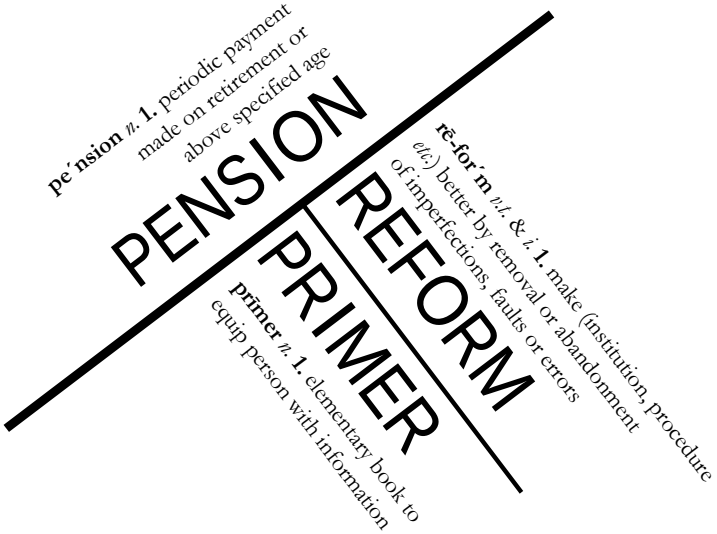

Social Security Coverage in Latin America

Rafael Rofman[*]

With the collaboration of

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1. INTRODUCTION

For almost a decade, the debate on social security in the region has revolved around the diversification of risks, macroeconomic effects of the systems, and private sector participation in their management. Now, however, many analysts are starting to focus on the issue of coverage. This "back to basics" approach may be related to a slow but steady accumulation of indicators showing that the reforms of the nineteen nineties had little or no effect on worker participation in formal social security systems, and that the number of elderly without income will steadily grow in the future, both in countries that advanced on reform processes and those that did not.

The debate on social security coverage has been complicated by a lack of consistent quantitative information that would allow for rigorous comparisons of different countries and different periods. Although many recently published articles and opinions include statistics, their sources and methodology are not always clear. For that reason, the publication of coverage information in a significant number of the region's countries, calculated simultaneously and based on similar data, makes an important contribution to clarifying the debate and developing specific policy proposals.

This document is a first step in that direction. It presents coverage indicators and their determinants for seventeen countries of Latin America, based on Household Surveys. The information is not perfect, given problems of comparability among instruments and systems, as well as difficulties for precisely capturing the characteristics sought in the survey data. Consequently, the authors consider this document to be a first step in a collective information evaluation process, understanding that the results may be adjusted in future reviews, in particular given that the work will continue generating the same indicators for the available years as of 1990.

The measurement of social security coverage and its determinants is not a mere mathematical exercise, since several definitions must be developed for the variables to be measured. The discussion on coverage measurement includes two aspects that, to a certain extent, could be treated independently. On the one hand, the topic of coverage involves a significant conceptual debate. In fact, before choosing indicators to measure the effectiveness of a pension system as far as access for the population is concerned, one must define the system's objectives, that is to say, what part of the population and what risks are intended to be covered. At the same time, coverage measurement is methodologically complex. Even when relatively simple indicators are adopted, their construction poses problems for several reasons. Sources are often nonexistent or limited in their reliability. Furthermore, many individuals fall into "grey zones" of the spectrum. Also faced are the inherent complexities of comparing different periods, countries, or regions. These problems cannot always be resolved, but they must be acknowledged in order to prevent incorrect conclusions.

The literature on social security systems agrees that the core objectives of these systems are to prevent poverty among the elderly and smooth consumption profiles over a person's lifetime. In addition, several authors have focused their analysis on other objectives or secondary aspects that need to be addressed when designing pension systems, such as their effects on national savings, the accumulation of capital, the labor market, or the fiscal situation. The relative importance of each of these elements (including the role of the State in the design, implementation, and management of the systems) varies in accordance with the philosophical and political position of the various authors. Some authors believe that the principal objective should be the alleviation of poverty in extreme cases. Others propose a broader approach, giving the social security system a central role in a society's income redistribution policy. A third group believes that the central objective is to ensure a substitution of equitable income, while still others focus on the need to promote economic development at a macro level, eliminating factors that could produce distortions in the various markets. In our own opinion, the core objective of a social security system is to provide economic security for the elderly population. Thus, any evaluation of its effectiveness should be conducted by considering access to such protection for the population as a whole. The second section of this document discusses these aspects, in order to carefully define the concept of coverage to be used.

A good conceptual definition is a necessary but insufficient condition for ensuring proper empirical measurements of coverage. There are many methodological problems, arising from practical difficulties for implementing the concept. These include the quality of the information collection instruments, availability and access to databases, and issues involving the comparability of different countries and different time spans. These problems and the approach used to reduce their impact on the quality of the indicators are discussed in the third section of this document.

The fourth section presents indicators for 17 countries in the region, obtained through an analysis of available household surveys. Recognizing the difficulties involved in comparing the available information, this section presents a group of similar indicators that make it possible to measure coverage in the various countries, both among active workers and among the elderly. In addition, several sociodemographic characteristics of the covered and uncovered population are presented and discussed, identifying relevant differentials.

2. SOCIAL SECURITY SYSTEMS, THEIR OBJECTIVES AND TOOLS

Social security systems, including retirement programs and, in many cases, health insurance are mechanisms created (or regulated) by the State with the aim of providing certain services under adequate conditions. The specific characteristics of these services have been subject to numerous interpretations and discussions, both in academic and political circles.

The principal debates revolve around the definition of the programs' core objectives. Most analysts agree that these systems are a response to a decrease in labor capacity with age, on account of which the elderly require external resources to finance their consumption. Though traditionally, the mechanism for financing the consumption of this group was organized through intrafamily transfers, the rise of modern labor markets and the demographic transition created a need to develop a society-wide approach, which, to a greater or lesser degree, replaced the family mechanism. Although retirement benefits already existed for small groups, the reform promoted by Otto Von Bismarck in Germany at the end of the nineteenth century was the first major development in this direction.

The literature agrees that the principal objectives of Social Security are to smooth consumption profiles over a person's lifetime and reduce the poverty rate among the elderly. This vision is the synthesis of two initially distinct criteria, seeking to replace earned income or to reduce poverty, respectively. Given these objectives, the "pure" systems could be classified as contributive and non-contributive.

Contributive schemes seek to create a mechanism that replaces the earned income of those who leave the market for reasons of age, financed by the participants. Some of these schemes use mandatory savings mechanisms, while others use intergenerational transfers, yet they always restrict coverage to the population participating in the labor market. The logic behind this criterion is simple: given that the development of labor markets limits the viability of family strategies to providing income for the elderly, the systems should offer wage earners protection similar to the family strategy.[1] This model does not aim at providing universal coverage. Rather, it focuses on the needs of wage earners, assuming that the rest of society will maintain the existing mechanisms to ensure subsistence in old age. This approach also assumes that the proportion of wage earners will steadily increase with economic growth, naturally tending to become universal. According to this line of reasoning, individuals are capable of generating adequate income during their active life to finance their present consumption and produce surpluses that can finance the current consumption of the elderly or their own future consumption. It is necessary, however, to design a scheme that organizes the transfers efficiently and sustainably. Therefore, the basic contributive model proposes that a

[1] One unsolved debate on this issue is whether or not one could expect social security systems to totally replace intrafamily transfers, or whether intrafamily transfers should continue playing a central role, complemented by governmental approaches. Such a question is key for interpreting the results presented in this document: If the existence of intrafamily mechanisms is to be expected and represents an adequate approach for the protection of income during old age, then the coverage of the social system is only important for those individuals who do not have access to such family support.

regular contribution be obtained from active workers (which determines their future right to receive benefits), with which to finance the benefits of retirees, generally in some type of proportion to their previous income.[2]

An alternative approach is that of non-contributive systems. This model was developed in various countries with British influence, taking the form of public programs for the alleviation of poverty in old age, and finances basic consumption for the entire elderly population. This model, inspired by a proposal of Lord William Beveridge at the end of the Second World War, was particularly welcomed in countries such as New Zealand, Australia, the United Kingdom itself, and other British ex-colonies. In contrast to the contributive scheme, the idea behind the non-contributive model is that financing should come from general taxation, and not linked to the labor market. in order to finance a benefit that covers all retirees. The benefit is financed through general revenues or fixed taxes on labor, and entitlement to the benefits is based on the concept of citizenship, without differentiating on the basis of one's previous labor status or prior income level. Given the universality and equality in the benefits proposed by this approach, the amounts are generally small, since they are not meant to replace income, but simply to guarantee minimum consumption.

Academic and political discussions on the advantages and disadvantages of these two approaches have been extensive and are far from being settled. Analyses and experience amassed over the years indicate that both approaches have virtues and defects and that, as in so many other realms of public policy, the most successful systems have been those that combine elements from different frameworks and implement them well. Contributive models tend to be appreciated for their self-financing capacity and greater transparency in terms of their effects on the labor market. Criticisms of such models include the risk of generating inequities, potential high costs, and limitations on expanding coverage beyond the formal sectors of the economy. Also criticized is their effectiveness in fulfilling the objective of reducing poverty among the elderly (since they only do so among those who participate). Non-contributive systems have the advantage that they can more efficiently reach sectors of society habitually excluded in the contributive models. Furthermore, they are independent from labor market cycles. Yet there is concern over their mid-term fiscal sustainability and the incentives that could be created for private savings.

[2] This model can be implemented through pay-as-you go (PAYG) or capitalization schemes. Though these variations are relevant to many financial and macroeconomic aspects, they still all maintain their contributive nature: the future beneficiaries will be today's contributors.

Even though systems with multiple components have existed in many countries for decades, only recently, in the nineteen nineties, did the literature on social security start to pay attention to the concept of multi-pillar models,[3] explicitly recognizing that the provision of economic security for the elderly in modern societies (whether developed or developing) is too complex to be addressed with simple tools. Rather, it is necessary to integrate various elements through multi-pillar systems aimed at meeting the needs of the different sectors of the population.

Most social security systems in Latin America were originally organized during the first half of the twentieth century, with a clearly contributive profile. In the countries where these programs were first developed, the process was generally driven by the demands of social groups or trade unions seeking to improve the labor conditions of their sector. In other cases, however, the development of these programs responded to initiatives arising from the government itself, motivated by politics or as part of an effort to improve the living conditions of the population (Isuani, 1979).

Systems in the countries where social security first developed tend to be fragmented, since originally, they responded to independent trade-union pressure groups or groups with influence in the government, who pushed through legislation to create their own protection schemes. For example, in the late 1960's, Chile had 35 social security institutions and 150 different schemes (Arenas de Mesa, 2000), while in Argentina, even after the unification of the system that occurred in recent decades, there are still at least six independent systems on a national level, 32 systems for civil servants of the provinces and municipalities, and several dozen social security funds for specific occupations on the provincial level (Secretariat of Social Security, 2002).

In other cases, where social security systems were created later, it is more usual to find centralized institutions and more uniform coverage over the various sectors of the labor market. Generally, the exceptions to the rules are the armed forces, law enforcement, and occasionally certain groups of public officials (court officers, diplomats, etc.).

Since most social security systems in the region originated as fragmented schemes, they tend to focus on specific sectors of society. It is rare to find a comprehensive approach to the problem of economic security for the elderly. Many of the schemes in the early twentieth century adopted funded schemes, fully or partially, as a financing strategy, even though in the majority of cases macroeconomic difficulties, political interference, and poor administrative management led them to become pay-as-you-go in practice, sometimes even with major subsidies from the State. The existence of three-prong financing mechanisms (with contributions from workers, employers, and the State) has been customary in the region. This approach is often used as a strategy to overcome short-term financial emergencies, but has also become a permanent financing

[3] The first explicit references to such a model were seen in a World Bank publication, "Averting the Old Age Crisis" (World Bank, 1994), which proposed the development of multi-pillar approaches. The concept and discussion have developed intensely over the past decade, and currently, few authors doubt the need to integrate different components in an effective social security system, although consensus is not always reached on the relative weight of these components. (See ILO (2001), Gill, Packard and Yermo (2004), or Holzmann (2005).

model. In some cases public sector contributions have been set as a percentage of the system's collections, covered payroll, or a pre-established amount (Bolivia and Mexico). In other cases, the public sector contribution is defined as a percentage of benefits (Ecuador), and yet in others, it is accomplished through a regular transfer from the treasury, based on collections of certain non-labor taxes (Argentina and Uruguay).

Following their creation, the majority of social security systems in the region steadily expanded their coverage for several decades, gradually incorporating new economic sectors and their respective workers. This growing trend made it possible to sustain an optimistic view of the long term, since growth in the number of participants pointed to the success of the model and, at the same time, concealed potential problems of financial sustainability, given the system's very young demographics. The prevailing view was tat the legal incorporation of all sectors of the economy, together with a trend towards formalization of the labor market, would lead in the mid term to universal or quasi-universal levels of coverage. Nonetheless, the expansion slowed down over time, leaving large sectors of the population outside of the system, especially those working in activities with low productivity and/or a high degree of informality. In addition, as the systems grew older, problems inherent to an aging population, and, in many cases, administrative mismanagement, created growing financial problems.

Reforms implemented during the nineteen nineties were in large measure aimed at improving the mid-term financial sustainability of these systems, while also promoting greater coverage by encouraging workers to enroll. The first objective was reasonably successful (though difficulties did result in terms of short-term financing), but the generation of new incentives, through a clearer connection between the contributions made and the benefits expected, had counterproductive effects. The number of contributors increased but slightly, and in many countries even decreased. Moreover, stricter eligibility requirements had negative effects on coverage among the elderly.

In this context, governments and analysts are increasingly expressing concern over the systems' insufficient coverage and an apparent skewing of the system, which tends to exclude the most vulnerable sectors. Discussions on extending coverage of contributive systems to sectors not yet included are gaining relevance in several countries. Financially sustainable mechanisms are being sought in order to advance along these lines, designing quasi-contributive schemes, such as the SSC (*"Seguro Social Campesino")* in Ecuador, or the Rural Pensions in Brazil, or completely non-contributive systems, such as Bonosol (*"Bono Solidario"*) in Bolivia, the PASIS (*"Pensiones Asistenciales"*) in Chile, or the *"Plan Mayores"* in Argentina). Nonetheless, these efforts have not always been accompanied by a greater analytical capacity regarding the phenomenon of social security coverage, in part due to a lack of adequate tools for making that analysis. Accordingly, this document presents a set of indicators that allow for a preliminary characterization of social security coverage (and "non-coverage") in a good part of the region.

3. DEFINITION OF COVERAGE AND ITS COMPUTATION

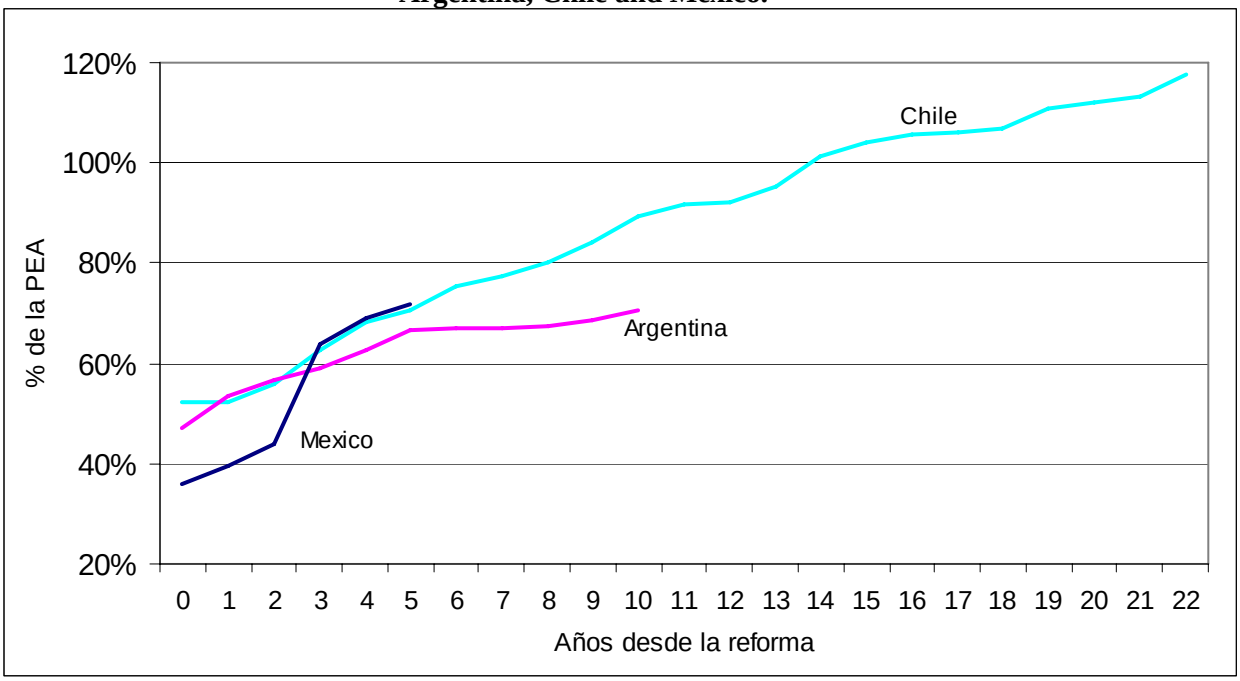
The traditional definition of coverage in social protection programs refers to the proportion of persons receiving a benefit within a given reference group, considered to be the "target population." This general definition needs to be refined when considering social security systems, since it is necessary to indicate the type of benefit involved and the target population that will be considered when evaluating the scope of the system. According to Grushka (2001) and Bertranou, Grushka and Rofman (2001a, 2001b), quite frequently, when discussing social security coverage, reference is made to those individuals who are receiving a pension or retirement benefit. Nonetheless, coverage has two phases. The first is related to the period in which a worker contributes to the system and accrues the right to benefits. This phase is coverage of the economically active population. The second is related to the receipt of monetary benefits when the individual reaches an advanced age, that is, coverage of the elderly. Even though in an extremely simple model, these two criteria should produce similar coverage indicators, in practice, differences regarding conditions of participation, the sociodemographic and economic profile of the population sectors involved in the system, and enrollment criteria, can lead to highly dissimilar results.

Measurements of coverage for the economically active population tend to be made bearing in mind some form of ratio. One indicator that has been used on several occasions is the ratio between the number of participants in the pension systems (understood to mean those enrolled in the systems), and the economically active population. A great advantage of this indicator is the relative simplicity of its calculation. Indeed, even those social security systems with the most deficient administrations are generally capable of estimating the number of workers enrolled, and the size of the economically active population is easy to obtain. Nonetheless, said indicator poses serious problems when analyzed in detail, since obviously, many individuals enrolled in the systems are not actually eligible to receive benefits. The records of social security institutions also tend to be oversized, with erroneous or duplicate records that are only corrected when participants apply for benefits. In particular, however, the problem lies in the fact that workers can enroll as participants but not make contributions (or make just a few in the course of their economically active life), either because they lose their job, or because they abandon economic activities (but without applying for benefits, since they do not meet the legal requirements), or simply because they stop paying into the system, joining the informal sector, yet without "disenrolling." This phenomenon of alternation between a status of non-activity, unemployment, informal employment, and formal employment, tends to result in a sustained increase in the ratio of participants/ economically active population, eventually surpassing 100%.[4]

[4] When analyzing the Argentine case, Paz (2004) estimated that 24% of the economically active population moves between jobs with contributions, jobs without contributions, and unemployment.

Figure 1 illustrates the evolution of this indicator in Argentina, Chile, and Mexico, based on the number of years passed since the implementation of the reforms (coinciding with the commencement of a new registration system). It is seen that the three countries have similar trends, and that, if this ratio is used as a coverage indicator, it eventually reaches a level of 100% (in Chile that occurred in 1995, 15 years after the reform, following which the country actually surpassed the 100% mark).

Figure 1. Affiliates to labor force ratio, by years after the reform
Argentina, Chile and Mexico.



Source: Own, based on information from Arenas de Mesa (2001), SAFJP (2005), CONSAR, and ECLAC

The ratio between the number of participants and the economically active population is a useful indicator, since it reflects the percentage of the population that at one point was associated with the social security system. Nonetheless, given the above-mentioned measurement problems, it is not a good indicator of coverage.

A similar phenomenon occurs with another indicator customarily used: the ratio between the number of contributors and the number of participants in a system. Given the growing trend in the denominator, this indicator tends to fall over time, without implying a real decline in the level of protection of the population. In order to avoid these distortions, several authors have opted to compare the number of contributors (that is, the number of persons actually making contributions in a given month) with the number of workers employed—occupational coverage—or with the economically active population (EAP)—coverage of the labor force—in order to provide better estimations of coverage.

Though this measurement seems more appropriate, it is important to note that it isn't absolutely precise either. Indeed, it is also subject to certain problems of definition. On the one hand, it is possible that under certain circumstances, workers can be covered even when they don't make contributions, as system rules could qualify them for benefits. As such, the indicator could underestimate coverage. This would be the case, for

example, of persons who have acquired rights based on prior contributions, or persons entitled to benefits due to exceptional situations that do not require contributions. At the same time, indicators based on the number of contributors can sometimes overestimate coverage, since sporadic contributions do not create entitlement to benefits unless they reach a minimum critical mass. Finally, variations in the systems' design among the different countries become important for evaluating the significance of the indicator. A contribution in any of the countries with capitalization systems automatically generates rights, but the magnitude of those rights is not identical. For example, contributions in Chile (where 10% of wages are deposited into individual accounts), "buy" more protection than contributions in the Dominican Republic (where the capitalized contribution is 5.5 percent of wages). Similarly, contributions also generate rights to receive minimum or basic pensions financed by the State, but the number of years of required contributions to receive that benefit varies widely (for example, it is only 20 years in Chile, but 35 years in Uruguay). In this case, one could say that a contribution in Uruguay "buys" less protection than in Chile.[5]

Mesa-Lago (2001) studied coverage in eight Latin American countries using indicators of participants and contributors in relation to the Economically Active Population, based on recorded data provided by the various official Social Security agencies. When comparing the figures, he found that the number of participants tend to be twice the number of contributors, but that even within the category of "contributors," there are definition problems, since the period used to determine who is an active contributor varies from one country to another. In fact, while in the majority of countries, the reference period is between one and six months, in Bolivia and Mexico even a person who made a single contribution since the system began is considered a contributor (which means that the difference between a participant and a contributor would disappear).

Measuring coverage of the elderly poses fewer difficulties than measuring coverage for the economically active population, since one is not measuring the accrual of rights to a potential benefit, but the actual receipt of that benefit. The indicator customarily used in this regard is the proportion of the elderly population that receives a retirement benefit or pension. This measurement has some limitations for evaluating individuals who do not receive the benefit and continue working (in many cases these persons may be entitled to a benefit but prefer to delay it) and for evaluating the spouses of beneficiaries, since it could be argued that even though social security income is received by an individual, its final beneficiary is the household. Bertranou, Grushka and Rofman (2001a) proposed three alternative measurements for coverage among the elderly that would take these factors into consideration. Accordingly, it would be possible to measure "individual coverage," which would estimate the proportion of the population receiving a benefit, "joint coverage," which includes spouses of benefit recipients among those covered, or "joint occupational coverage," which also includes as "covered" those persons who remain employed in the labor market and their spouses. The relevance of

[5] The measurement of how much each contribution "buys" is complex, since the accumulation of rights is not linear or continuous, but varies in accordance with the rules and regulations of each country. One example of this is the existence of old-age benefits in several countries of the region whose requirements are less stringent, but that demand a higher age and, generally, offer lower benefits.

this final indicator is that its complement (that is, those who are not covered), are persons who do not have any income from the labor market or from the social security system. Their survival therefore depends on the consumption of savings or family transfers.

3.1. Problems with Data Sources

Traditionally, coverage measurements tend to be made on the basis of registration, given its availability. This provides a simple method for monitoring coverage trends over time, since social security agencies and institutes customarily release annual membership figures. This method also makes it possible, if the records are high in quality, to analyze the labor history of individuals and observe the "density" of their contributions, which cannot be accurately measured by other means. Nonetheless, using records can pose certain problems. Information in countries with multiple independent systems can vary in availability. The quality of the records can also vary (in particular, incorrect and/or duplicate data may exist). Finally, other sociodemographic characteristics of the population with and without coverage may be hard to determine through these records.

Indicators built from registration data may underestimate coverage, due to difficulties in obtaining sufficient data from all the social security programs. The most serious problems are seen in relation to systems that are less than national in scope (such as provincial social security funds in Argentina or state social security funds in Brazil) or systems that cover a specific occupation (such as professional funds in Uruguay, Paraguay, or Argentina, civil servants systems in Peru and Mexico, or retirement schemes for the military and police in almost all the countries of the region), since such programs rarely offer updated, reliable information. Given this situation, one promising alternative consists of using data from household surveys, which allow for a more detailed analysis of the information and reduce the influence of administrative errors.

Household surveys collect detailed data on a variety of sociodemographic and economic characteristics, it is possible to make cross-comparisons of variables and assemble information that is not available in the official records. In recent years, several studies have been published in the region using this methodology, although almost all of the studies refer to a single country. Among these works are case studies on Argentina (Bertranou, Grushka and Rofman, 2003), Brazil (MPS, 2004), Ecuador (World Bank, 2005), Paraguay (Cruces and Arca, 2003), Peru (World Bank, 2003), and Uruguay (Bucheli, 2004). Some efforts have also been made to collect information on coverage based on surveys at a regional level, assembling comparable information. Nonetheless, the data presented in these cases did not go into detail on the sociodemographic characteristics of the covered and uncovered population. Rather, they were limited to providing aggregate indicators. Among the most important works in this area are the report issued by the ILO (2000), a compilation of data from surveys published by Packard (2002), and a more recent study focusing on employment histories, by Gasparini (2004).

These surveys pose some problems, however, especially if used to make international comparisons. The quality of the instruments and their representativity is not uniform. In fact, there are differences in geographic coverage (in some cases the surveys are exclusively urban, while in others they are nationwide), as well as differences in the

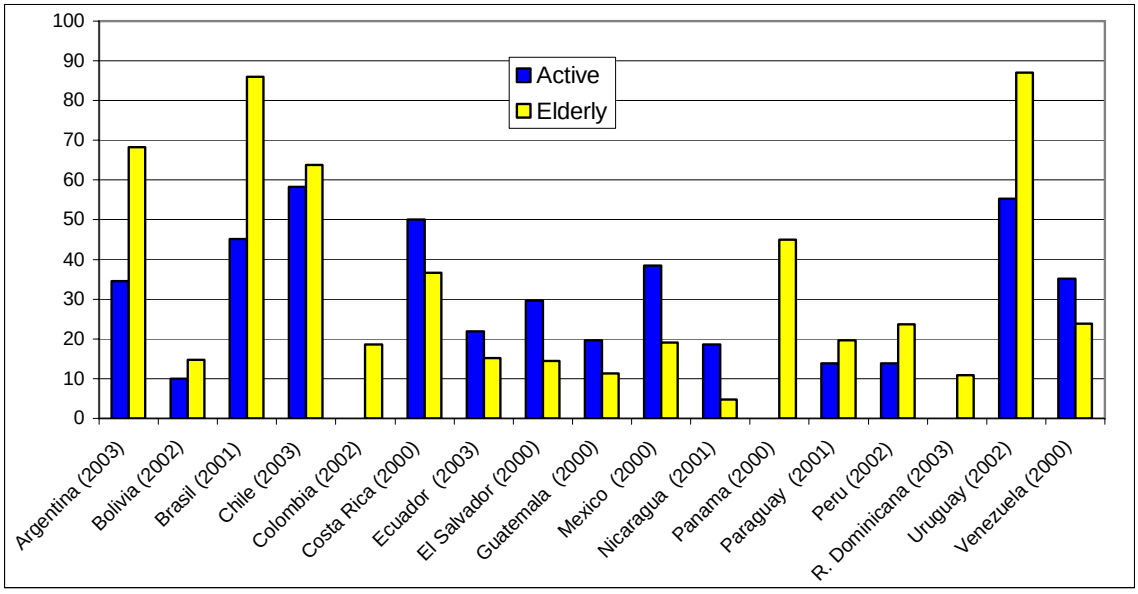
way the questions are formulated and processed. Therefore, one should be cautious about using them to analyze coverage. The appendix to this document regarding methodology provides greater details on each of the surveys used and the processing criteria adopted.

4. MEASURING SOCIAL SECURITY COVERAGE

For purposes of this document, an analysis was made of household surveys from 17 countries of the region. The surveys date back to the years 2000 to 2003, and their coverage is national in all cases, with the exception of Argentina and Uruguay. The definition of coverage adopted follows the guidelines discussed in the preceding section, that is, by measuring the proportion of the economically active population above the age of 20 who make contributions to a social security system as an indicator of coverage in the economically active ages, and the proportion of the population over the age of 65 who receive benefits as an indicator of coverage among the elderly. This criterion was applied in all cases, with small variations needed for practical reasons.[6]

The aggregate results for the economically active populations and the elderly are shown in Figure 2.

Figure 2. Coverage Rates for the Economically Active Population and the Elderly. Selected Countries of Latin America



Source: Own, based on household surveys

No country of the region has levels of coverage for the economically active population surpassing 60% of the workers, or percentages of coverage among persons over the age of 65 surpassing 90%. In relation to the economically active workers, there is a group of countries with coverage between 40 and 60% (which includes Chile, Uruguay, Costa Rica, and Brazil), and another with coverage between 30 and 40% (Mexico, Argentina, Venezuela, and El Salvador), while the rest have coverage rates of less than 30%. In some extreme cases, such as Bolivia, Paraguay, and Peru, coverage is provided for less than 15% of active workers.

[6] For a detailed description of the criteria used in each country, see the Attachment on Methodology.

Only two countries cover more than 80% of the elderly, Brazil and Uruguay. In the case of Brazil, the high percentage is due in part to the extent of coverage of rural pensions, which is an almost non-contributive system covering rural workers. Argentina and Chile have coverage rates of 60-70%, and the remaining thirteen countries have levels below 50%. Several of them (Bolivia, the Dominican Republic, Ecuador, El Salvador, Guatemala, and Nicaragua) cover 15% or less of their elderly.

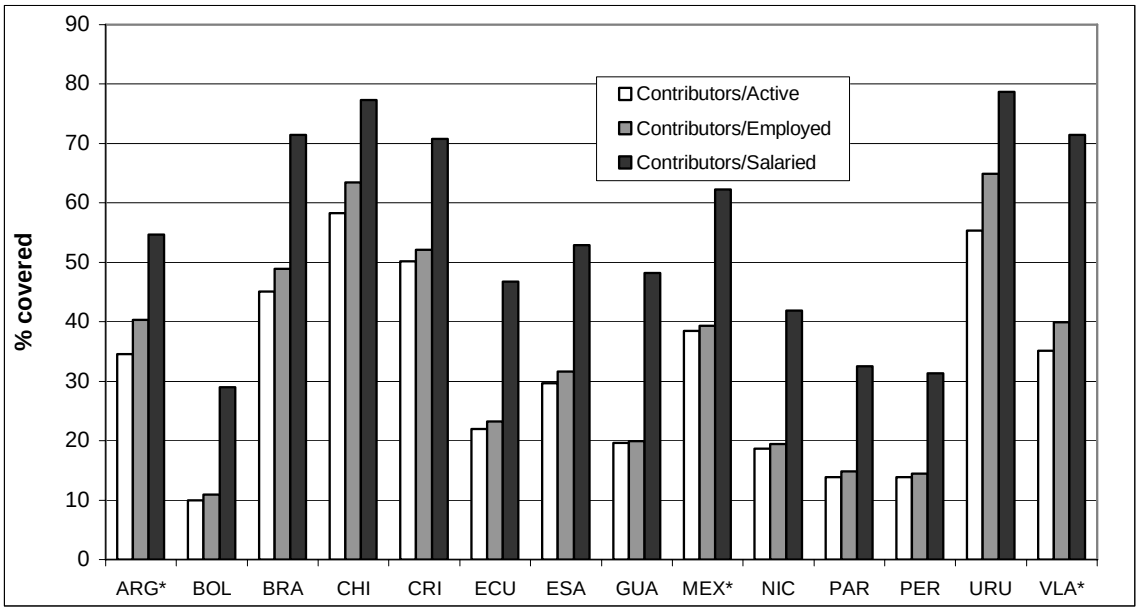
Figure 2 illustrates a critical aspect of the region's social security systems: The level of workers' participation in the system does not have a clear correlation to the coverage of the elderly. A quick glance at Figure 2 shows that in some cases coverage of the economically active population is greater than coverage of the elderly, while in other cases the reverse is true. This could be due to a number of factors, yet it appears that the maturity of the systems plays a major role: In countries whose retirement systems date back the farthest, and have little or no changes in legal coverage over time, the elderly tend to have coverage rates greater than the active workers, while in countries where participation of the economically active population is increasing (either due to changes in the system or through changes in the labor market) the reverse is true.

These aggregate indicators mask important differences among population groups, in terms of age, gender, economic sector, or socioeconomic level. Below, some aspects of these differences are explored.

4.1. Active Workers

The coverage rates among active workers presented in Figure 2 represent a first look into the problem that can be explored more thoroughly. As mentioned in previous sections, the region's social security systems are oriented towards protecting wage earners, but the rate of unemployment and self-employment (that is, non-wage-earning work) can be quite high. Figure 3 illustrates coverage rates for the economically active population, the employed, and wage earners for each country, revealing significant differences among these groups. The contributors/employees ratio is 10% greater, on average, than the contributors/active workers ratio. On the other hand, the difference between the coverage rate for employed persons and the coverage rate for wage earners is much greater, with an average of 60% and several cases where the first doubles the second, due to the high proportion of self-employed workers. Still, only four countries surpass a 70% coverage among wage earners, while six countries have a rate of below 50%. This indicates that problems of coverage in the region are not only the product of unemployment or the percentage of self-employed workers. Rather, the characteristics of the salaried labor market play a significant role.

Figure 3. Coverage Rates for the Economically Active Population, Employed and Salaried workers. Selected Countries of Latin America (data for available years between 2000 and 2003).

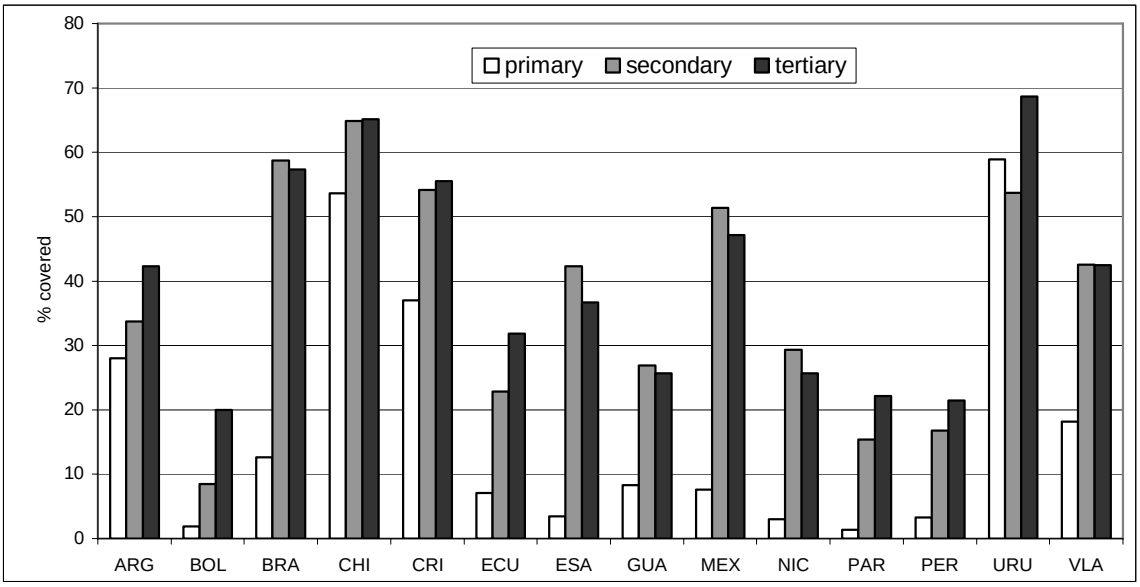


Note: In Argentina, Mexico, and Venezuela, only the participation of wage earners in the social security system is disclosed. This introduces a distortion, since the self-employed are ignored. Nonetheless, the resulting underestimation seems to be minor, since the participation of the self-employed, according to administrative records, is very low in the three countries.

Source: Own, based on household surveys

An analysis of the information also indicates important differences by sector of activity. In almost all cases, coverage is significantly lower among those who work in the primary sector, which is to be expected, given the difficulties experienced by traditional social security systems in covering rural populations. With respect to the differences between the secondary and tertiary sectors, Figure 4 indicates that differences are minor or favorable to the tertiary sector, as is the case in Argentina, Bolivia, Ecuador, Paraguay, Peru, and Uruguay.

Figure 4. Coverage Rates for the Employed Population, by Sector of the Economy. Selected Countries of Latin America (data for available years between 2000 and 2003).

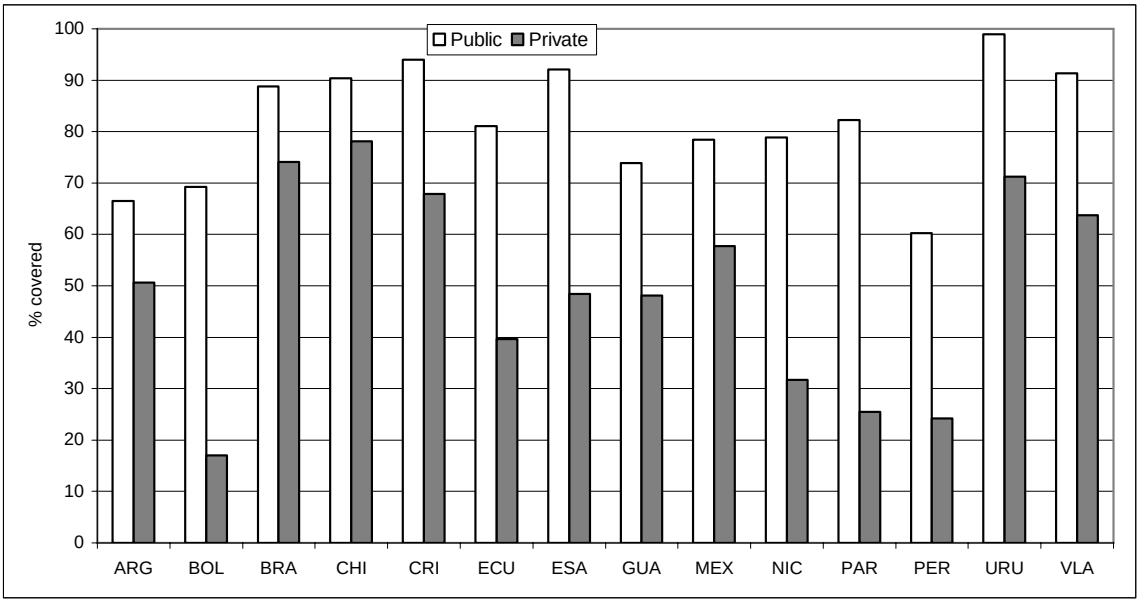


Source: Own, based on household surveys

One statistic of interest is the coverage rate of wage earners, depending on whether they work in the public or private sector. In principle, one would expect the coverage rate among wage earners in the public sector to be close to 100%. Nonetheless, this is not always the case. Though part of the gap could be explained by problems in the surveys (including errors in reporting), the low coverage rates in the public sector of several countries indicates that there is a real informality problem in this sector.

These rates are especially low in Argentina, Bolivia, and Peru, where the percentage of wage earners in the public sector who state that they have social security coverage is less than 70%, while another five countries show rates ranging from 70% to 90%. Only Chile, Costa Rica, El Salvador, Uruguay, and Venezuela have values surpassing 90%.

Figure 5. Coverage Rates for the Wage-Earning Population, by Type of Employer. Selected Countries of Latin America (data for available years between 2000 and 2003).

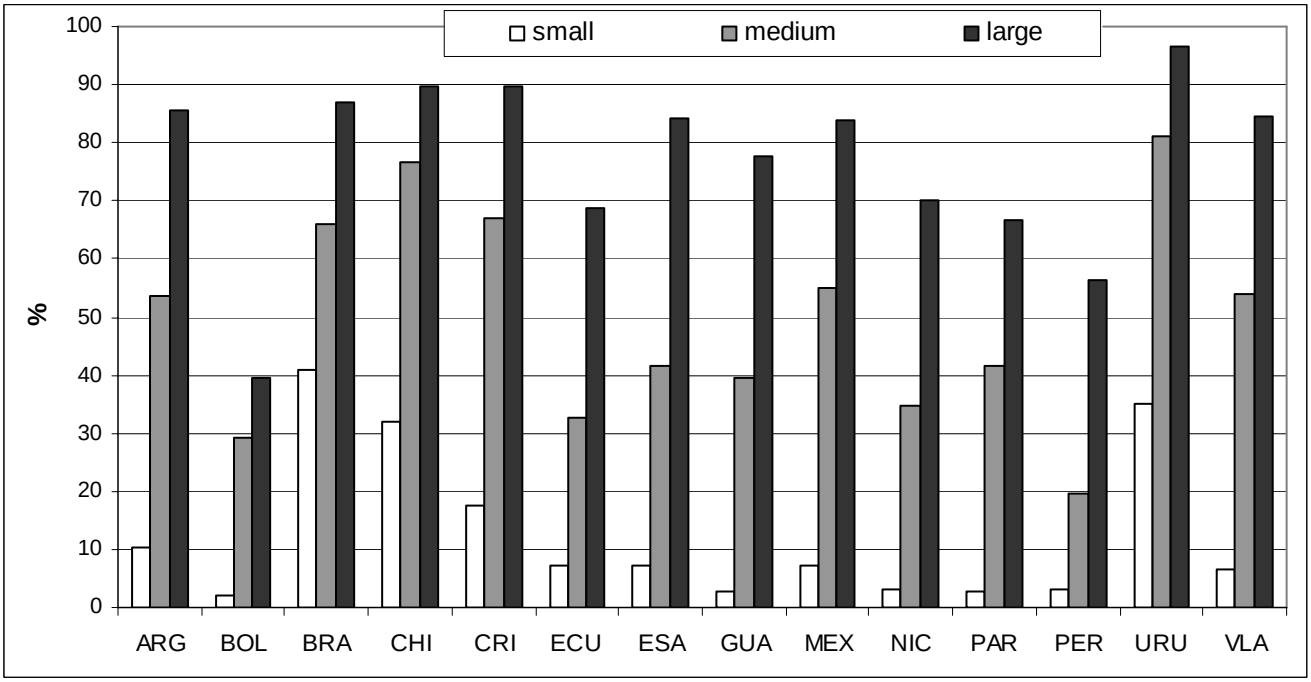


Source: Own, based on household surveys

The workplace size appears to be a fundamental determinant in the degree of coverage for wage earners. Coverage in large establishments is between three and thirty times higher than in small establishments.[7] Only two countries (Bolivia and Peru) have coverage rates in large establishments below 60%, while no country has a rate above 40% for small establishments. This information appears to support the hypothesis that larger establishments tend to be formal (and, therefore, tend to formalize their labor force), while the smaller ones are basically informal.

[7] For purposes of this analysis, a small establishment is understood to mean one that employs up to 5 workers, a mid-sized establishment is understood to employ between 6 and 50 workers, and a large establishment is understood to employ more than 50 workers. Due to problems with the availability of information, in several cases, it was necessary to redefine the limit between mid-sized and large establishments (the limit is 40 workers in Argentina, 10 workers in Brazil, and 20 workers in Costa Rica and Venezuela).

Figure 6. Coverage Rates for the Wage-Earning Population, based on the Size of the Establishment. Selected Countries of Latin America (data for available years between 2000 and 2003).

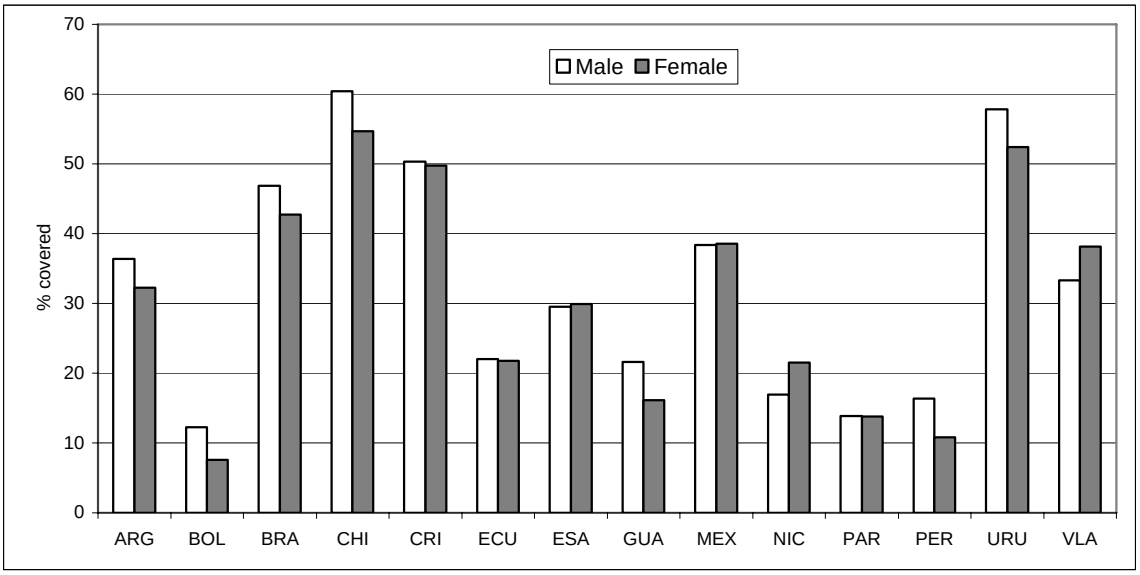


Source: Own, based on household surveys

Just as the characteristics of the labor relationship and those of the employer have a relevant effect on the level of coverage, the sociodemographic characteristics of individuals can also be determinant. In this analysis, consideration is given to the workers' gender, age, and income levels.

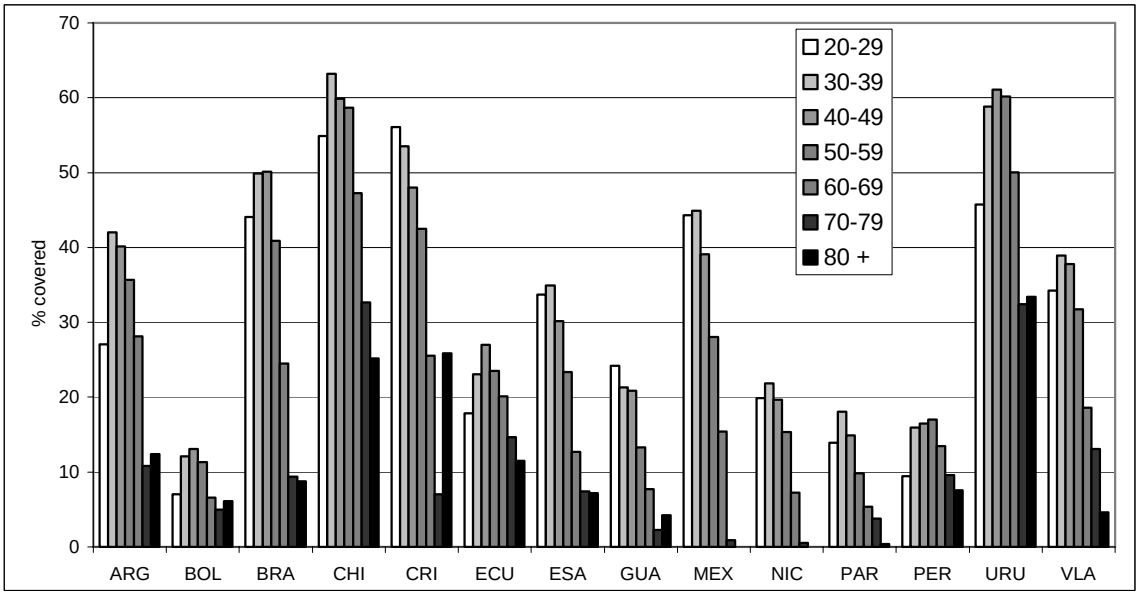
Differences in coverage by gender are minor and without clear trends. Indeed, in some cases a slight advantage is seen for men and in others for women. On the other hand, when considering age-based differences, it is seen that the highest rates of coverage in most cases are among workers between 30 and 39 years of age, after which the coverage rate declines. Uruguay presents a different situation, since the high coverage holds nearly steady for workers between the ages of 30 and 60, while in other cases, such as Costa Rica, Mexico, and Nicaragua, the mode is seen among workers between the ages of 20 and 30. The lower coverage among the younger population is consistent with other findings in the literature, which indicates that age bracket to be the one most impacted by unemployment and most likely to work in the informal sector.

Figure 7. Coverage Rates for the Economically Active Population, by Gender. Selected Countries of Latin America (data for available years between 2000 and 2003).



Source: Own, based on household surveys

Figure 8. Coverage Rates for the Economically Active Population, by Age. Selected Countries of Latin America (data for available years between 2000 and 2003).

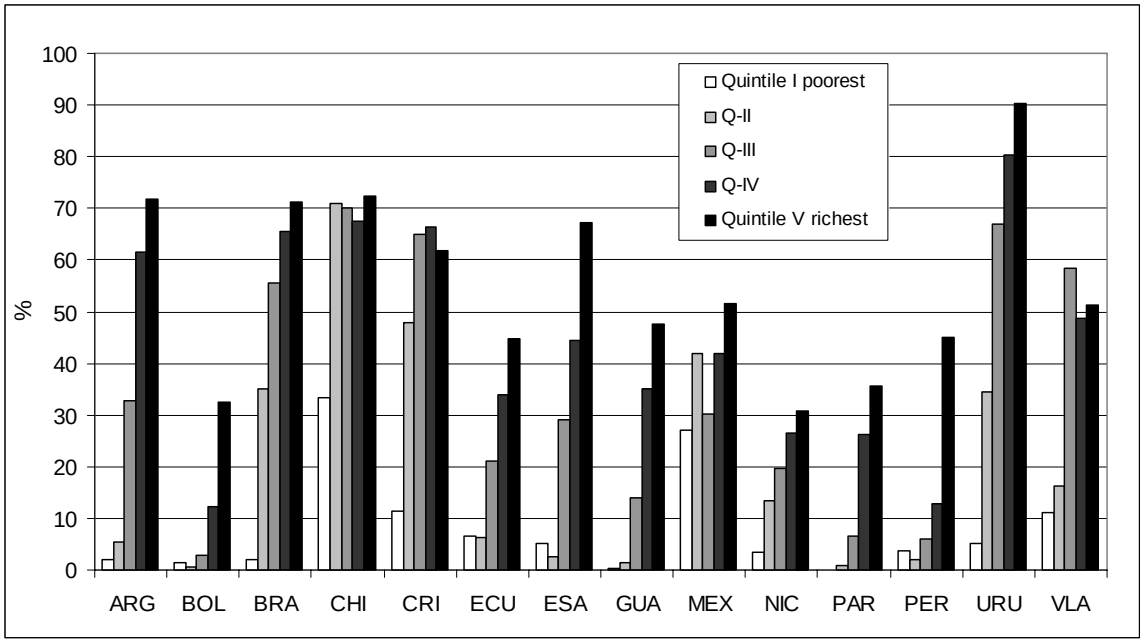


Source: Own, based on household surveys

One statistic that is of particular interest is coverage by income levels. As mentioned above, one of the principal objectives of social security systems is to protect retired workers from poverty. In order to achieve this objective, a contributive scheme requires that the poorest sectors participate in the program during their economically active life, in order to later provide them with benefits.

Figure 9 illustrates the coverage of the systems among economically active workers, by income quintiles (based on the personal income of the workers), while Figure 10 presents the same information for employed workers. The difference among the two figures is that Figure 9 includes workers who are economically active, but unemployed, who in most cases have no income, and, given that the systems are contributive, have no coverage,[8] while Figure 10 only considers those who are actually working and, therefore, are presumably receiving an income.[9]

Figure 9. Coverage Rates for the Economically Active Population, by Income Quintile. Selected Countries of Latin America (Data for Available Years between 2000 and 2003)

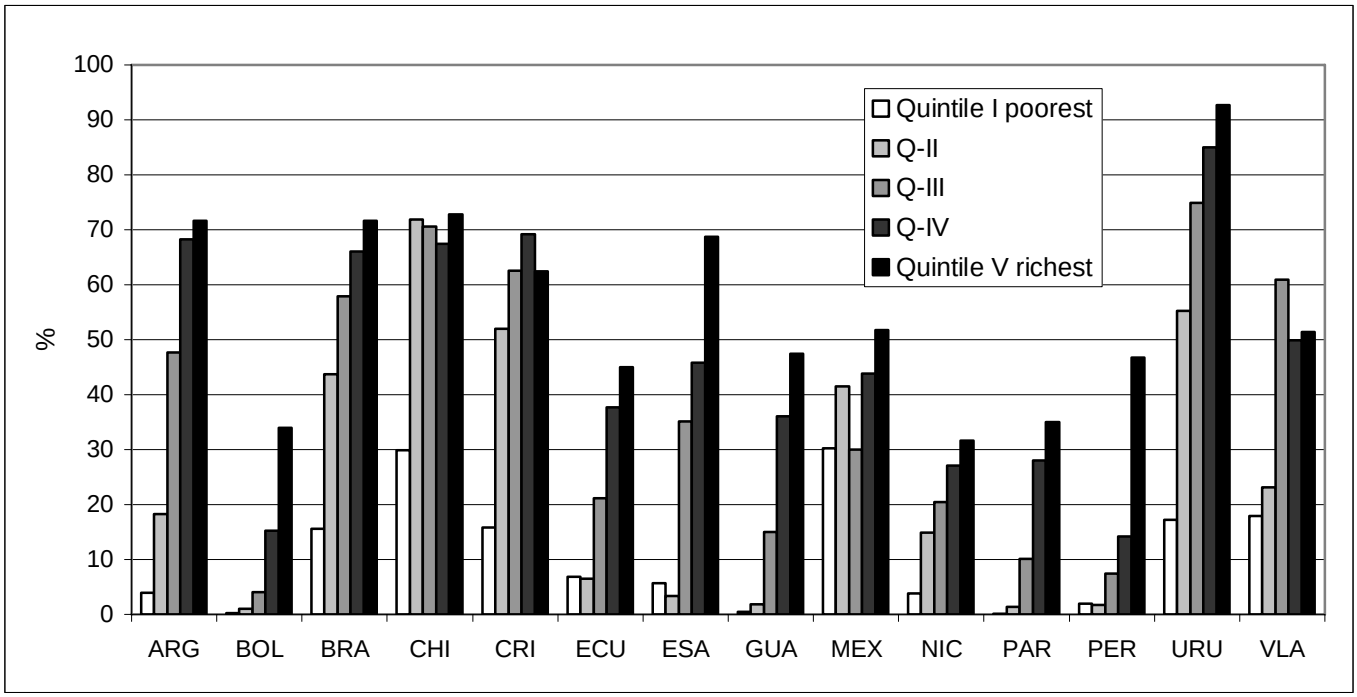


Source: Own, based on household surveys

[8] This would not be the case, for example, of the unemployed who receive unemployment insurance in Uruguay, since that benefit includes contributions to the social security system. On the other hand, this would indeed be the case for the beneficiaries of the "Plan Jefes de Hogar" ["Heads of Households Plan"] in Argentina, since that plan, even if the beneficiaries are working, does not pay such contributions.

[9] The category of employed persons includes unpaid workers. Accordingly, there are some cases where employed persons do not have the capacity to make contributions on their own account.

Figure 10. Coverage Rates for the Employed Population, by Income Quintile. Selected Countries of Latin America (data for available years between 2000 and 2003).



Source: Own, based on household surveys

The differences between the two charts are minor. This shows that the social security systems suffer from major inequities in terms of access, even without considering the situation of the unemployed. Coverage among employed workers of the two highest quintiles is nearly three times that of the two poorest quintiles, on average. In the most extreme cases, coverage of the richest workers reaches five times that of the poor, and as much as 37 times in Paraguay (where the coverage of the poorest quintile of employed workers is only 0.1%). On the other end of the spectrum is the case of Mexico, where coverage of the two richest quintiles is just 30% higher than that of the two poorest quintiles.

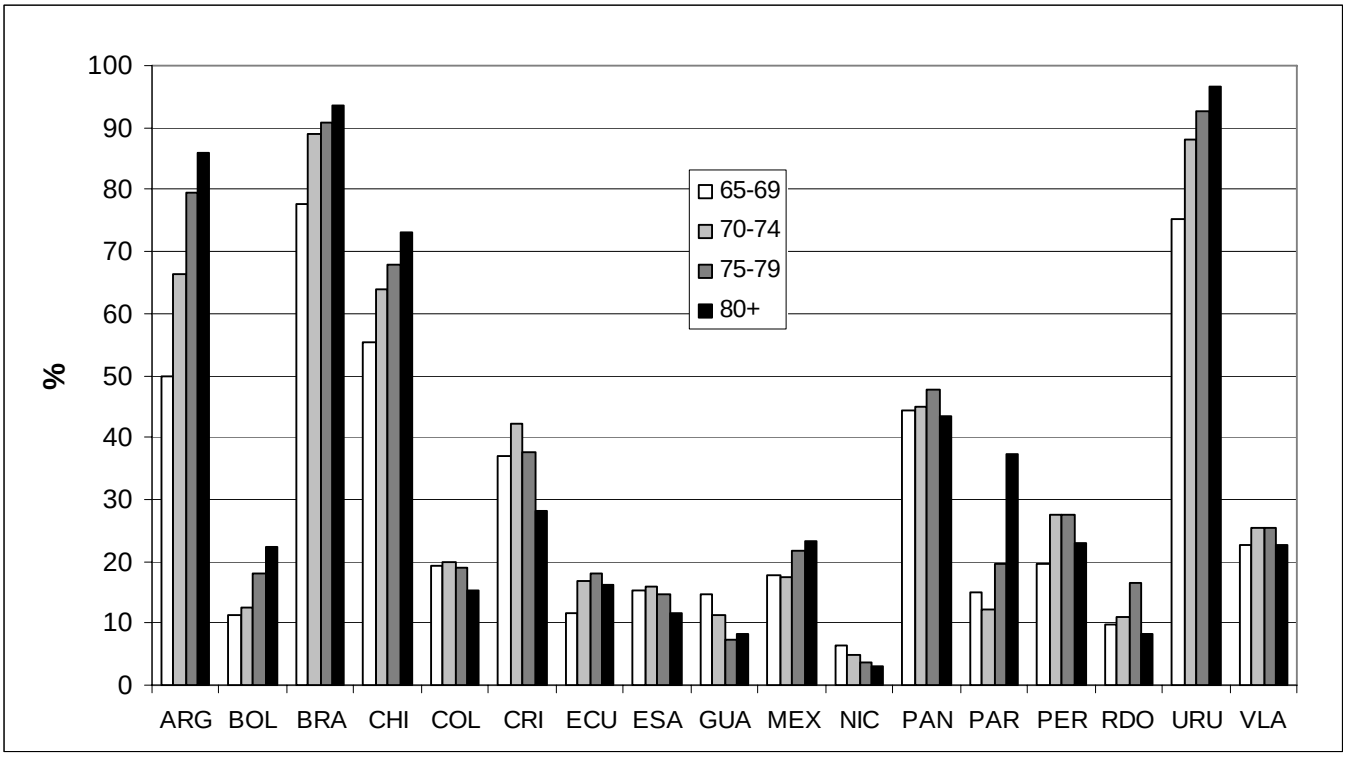
4.2. The Elderly

Unlike the coverage measurements among the economically active population, the situation of the elderly, who have already left the labor market, is simpler to measure. Given that in this stage, potential benefits are not accruing, but instead, the benefit is actually being received, it is only necessary to consider the proportion of the elderly that is receiving pensions or retirement benefits in order to evaluate coverage.

Figure 2 shows reasonably high coverage rates in Brazil and Uruguay (of almost 90%), somewhat lower rates in Argentina and Chile (approaching 70%), and alarmingly low rates in the rest of the countries, of less than 50% of the population over the age of 65. Behind these rates are significant differences that should be acknowledged. For example, in almost all countries, coverage tends to increase with age, because some

workers delay their retirement. Nonetheless, this does not hold true in every country, which indicates several cases of a severe lack of protection for the elderly.

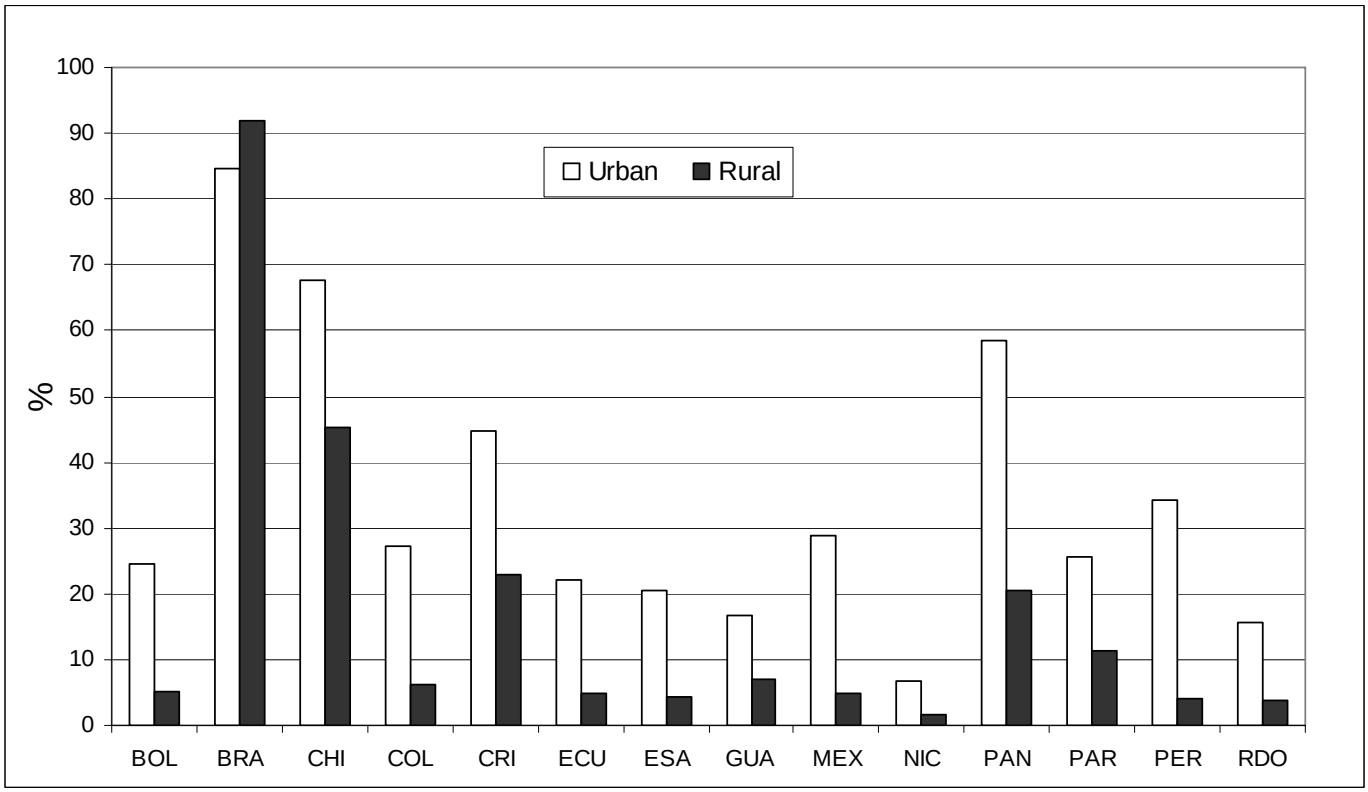
Figure 11. Coverage Rates for the Population over the Age of 65, by Age. Selected Countries of Latin America (data for available years between 2000 and 2003).



Source: Own, based on household surveys

Coverage of formal pension systems, since they are closely tied to past contributions within a context of formal employment markets, is clearly urban in nature. Among the countries whose surveys indicate the area of residence of the elderly, it can be seen that the proportion of the elderly in the cities who receive benefits is several times greater than the proportion of elderly benefit recipients residing in rural areas. The only exception is Brazil, where the rural retirement-benefits program, which is quasi-non-contributive in nature, brings coverage to the countryside at a rate of more than 90%.

Figure 12. Coverage Rates for the Population Over the Age of 65, by Area of Residence. Selected Countries of Latin America (data for available years between 2000 and 2003).



Source: Own, based on household surveys

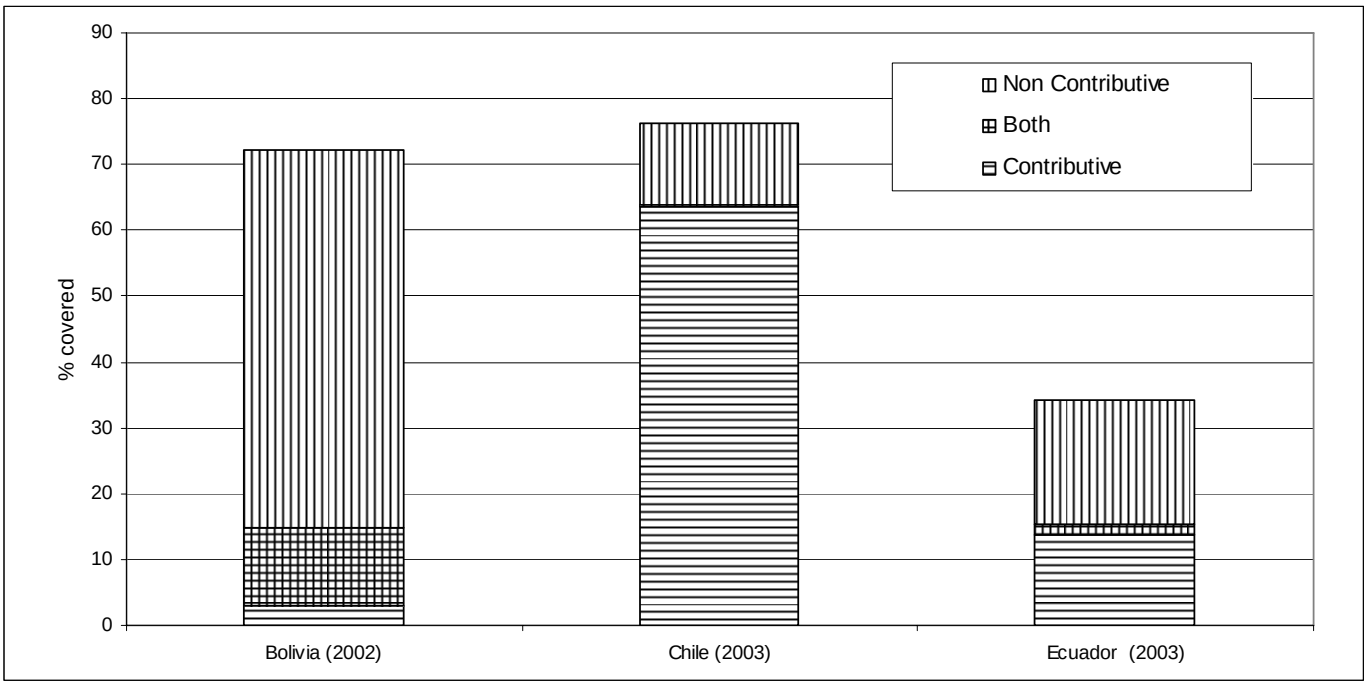
The role of non-contributive or quasi-non-contributive benefits in the coverage of the elderly is important in several countries, and available evidence indicates that those benefits are not comparably reported in all the surveys used. For example, the high coverage among elderly Brazilians in the rural area indicates that rural pensions in that country were considered social security benefits in the survey. A similar treatment seems to have been given in Argentina to the Non-Contributive Pensions (*Pensiones No Contributivas* - PNC). Yet other similar programs, such as Bonosol in Bolivia, the PASIS (*Pensiones Asistenciales* - Welfare Pensions) program in Chile or the Human Development Bonus in Ecuador also play a considerable role, but the available surveys did not consider them to form a part of the social security system. Figure 13 shows the resulting change to coverage of the elderly if such benefits were considered in those three countries.

In Bolivia, the inclusion of Bonosol beneficiaries has a major impact, given that this program is almost universal. Coverage for persons over the age of 65 would rise from 14.7% to 72%.[10] Since no incompatibilities exist between the contributive and non-contributive approaches, almost 80% of retirees also receive the Bonosol. In Ecuador the

[10] Though the 70% coverage of the Bonosol is very high, it is important to consider that this program is designed to provide universal coverage. Accordingly, the data suggests that access to the program is not as ample as it should be.

impact is not as great, since the Human Development Bonus is more limited in scope. Close to 20% of persons over the age of 65 are beneficiaries, (among them, a mere 1.5% of the elderly receive both forms of benefits), which yields a total coverage rate of 34%. Finally, the PASIS program in Chile provides benefits to 13% of the persons surveyed, with no duplication of benefits. Thus, coverage increases from 63.8% to 76%. Though it could be argued that in order to fully analyze social security coverage one should include the beneficiaries groups of these programs, it is important to consider that the amounts of these benefits are significantly lower than those of traditional pension benefits, and the extent of their role in providing social protection is relative. Therefore, in order to eliminate inconsistencies with other countries, the analysis was conducting accepting the coverage definitions from the surveys' basic questions.

Figure 13. Coverage Rates for the Elderly, considering social assistance programs for the elderly. Bolivia, Chile, and Ecuador (data for available years between 2000 and 2003).



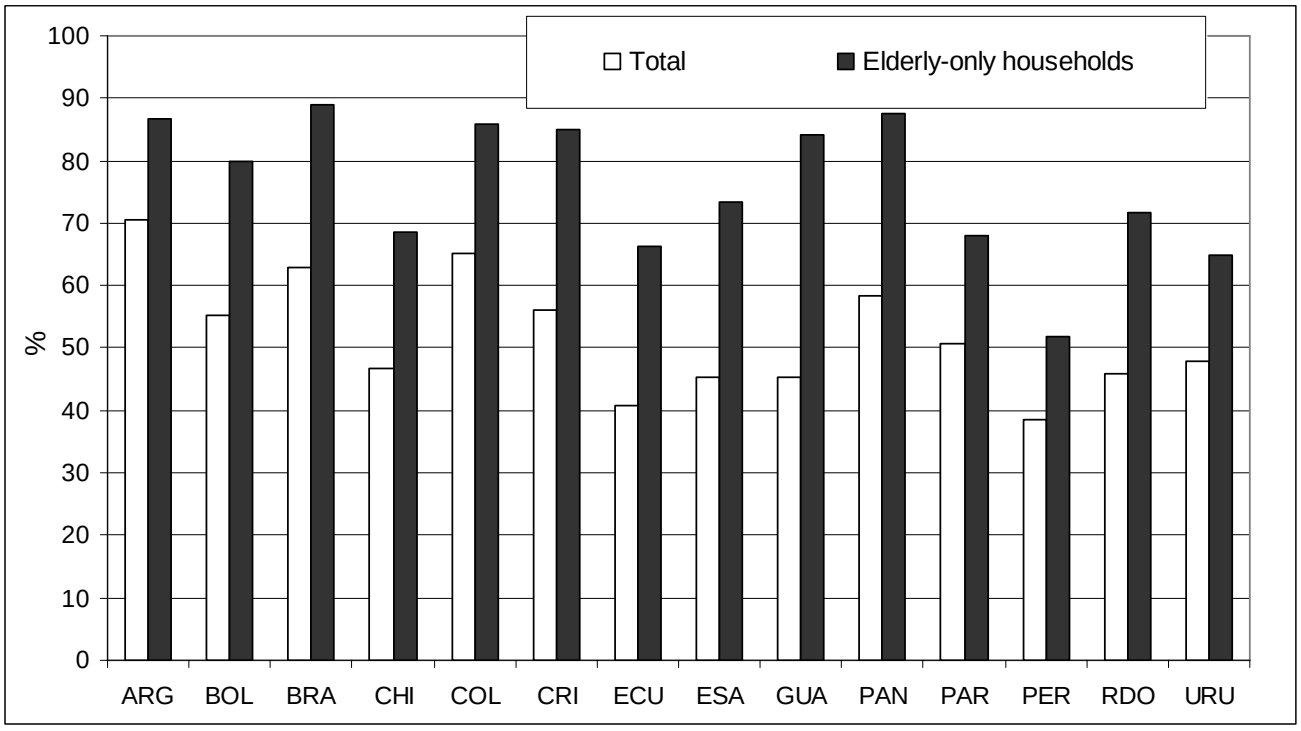
Source: Own, based on household surveys

The importance of social security coverage in old age defines the role of the social security system in reducing poverty and improving financial flows for the elderly. However, this dimension is particularly difficult to evaluate, since the information available in household surveys on poverty is limited to current income. Furthermore, given that the receipt of retirement benefits in households that include the elderly is a major component of total income, measuring the relation between poverty and coverage would be tautological, since the uncovered are more likely to be poor, partly because they do not receive a retirement benefit.

Instead, it is interesting to evaluate the importance of retirement benefits in households where that income is received. Figure 14 shows the proportion of total household income provided by retirement benefits, for all households with at least one

beneficiary and for households integrated exclusively by members aged 65 or more. In the first case, income from social security benefits represents between 38.4% (in Peru) to 70.6% (Argentina) of total income, while in the case of elders-only households, the range goes from 52% (in Peru) to 89% (in Brazil).

Figure 14. Share of Retirement Benefits and Pensions in relation to the Total Income of Households, based on the Household Composition. Selected Countries of Latin America (data for available years between 2000 and 2003).

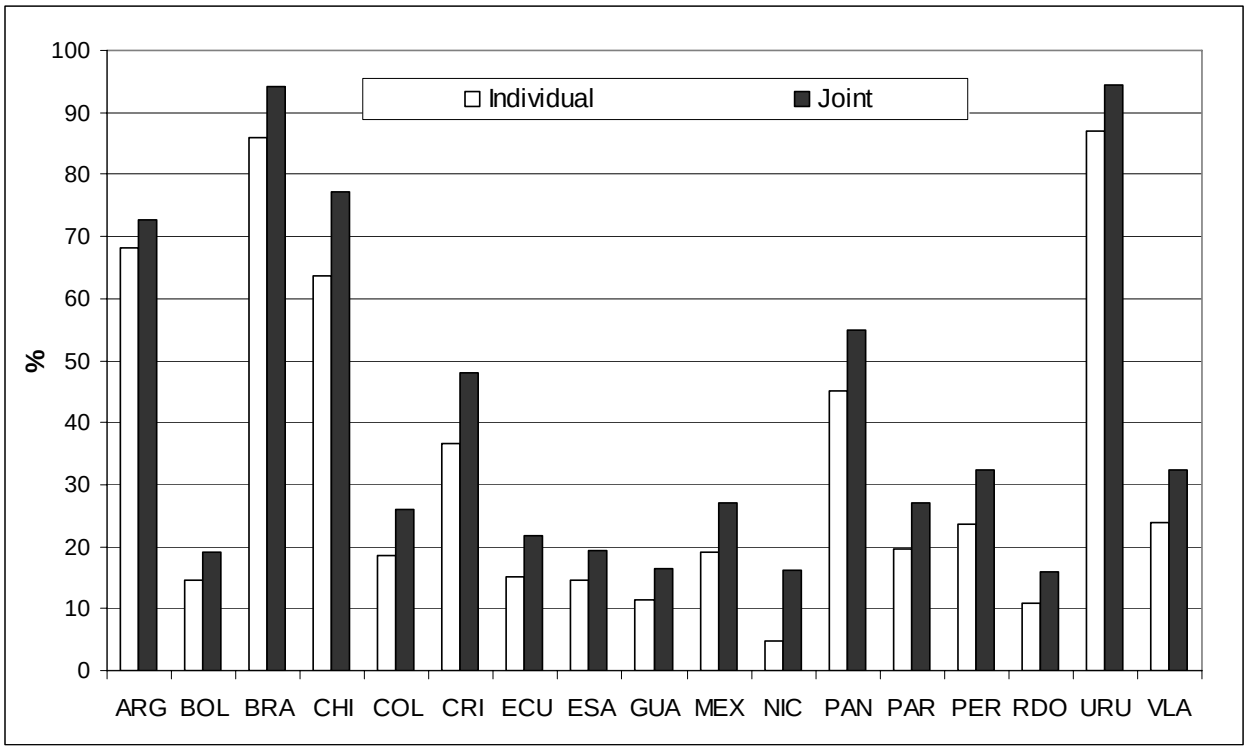


Source: Own, based on household surveys

This information gives an indication of the "depth" of the coverage. Indeed, what is relevant is not only that the elderly receive benefits, but also the role that these benefits play in their income structure.

Finally, it is possible to consider coverage as a household benefit, as opposed to merely a benefit to individuals. Accordingly, a "joint coverage" indicator was calculated, adapting the methodology proposed by Bertranou, Grushka and Rofman (2001). This indicator represents the percentage of the elderly who reside in a household in which at least one social security benefit is received. Joint coverage, by definition, is somewhat higher than individual coverage, since it includes all beneficiaries and their relatives aged 65 and more. The effect is similar in almost all the countries, with increases in coverage ranging from 4 to 14 percentage points.

Figure 15. Individual and Joint Coverage.
Selected Countries of Latin America (Data for Available Years between 2000 and 2003).



Source: Own, based on household surveys

5. SUMMARY AND NEXT STEPS

The figures presented in this document clearly indicate that most of the region's countries have serious problems in meeting the basic objectives of their social security systems. Only three of the seventeen countries surveyed offer effective protection to more than two-thirds of their elderly population, while ten countries in the region protect less than one-fourth of that population.

The root of the problem lies in the active stage of the system, since the high rate of informality results in limited access to social security benefits for the elderly. Few countries have implemented non-contributive schemes that recognize this reality and attempt to offer protection to the elderly through other means. Among these, the case of Brazil is important, as it used a contributory but highly flexible scheme. Alternatively, Chile and Bolivia have developed non-contributive programs of a significant magnitude. Of course, developing any non contributory or highly subsidized scheme requires a careful analysis to ensure its financial sustainability.

The data indicates that coverage problems transcend the debate on public vs. private management of the systems. Eight of the countries analyzed have reformed their social security systems, introducing funded schemes with individual accounts and private management, while the rest still rely on pay-as-you-go schemes managed by the government. The low coverage, with inequities by income level, sector of the economy, and area of residence, recur in almost all the countries, indicating the existence of structural problems in the labor markets and in the design of the social security systems, which ought to be revised.

Measuring social security coverage and its determinants as presented in this document is a first step in an analytical program, seeking to contribute to a discussion of these problems and a search for solutions. This program will continue, building a database that includes time series for the indicators and a more detailed analysis, using more sophisticated tools than the simple cross-comparison of variables.

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STATISTICAL ANNEX

Table 1. Coverage Rates for the Economically Active Population and Elderly, Alternative Indicators

Country	Contributors/ Economically Active Population	Contributors/ Employed Persons	Contributors/ Wage-Earners	Beneficiaries/ Population Age 65+
Argentina (2003)	34.6	40.3	54.7	68.3
Bolivia (2002)	9.9	10.9	29.0	14.7
Brazil (2001)	45.1	49.0	71.5	85.9
Chile (2003)	58.2	63.4	77.3	63.8
Colombia (2002)				18.6
Costa Rica (2000)	50.1	52.1	70.8	36.6
Dominican Republic (2003)				10.9
Ecuador (2003)	21.9	23.3	46.8	15.2
El Salvador (2000)	29.7	31.6	52.9	14.5
Guatemala (2000)	19.6	19.9	48.3	11.3
Mexico (2000)	38.5	39.3	62.2	19.2
Nicaragua (2001)	18.7	19.4	41.9	4.7
Panama (2000)				45.0
Paraguay (2001)	13.9	14.8	32.5	19.6
Peru (2002)	13.9	14.4	31.3	23.7
Uruguay (2002)	55.3	65.0	78.6	87.1
Venezuela (2000)	35.1	40.0	71.5	23.9

Source: own, based on household surveys

Table 2. Coverage Rates for the Economically Active Population (Contributors/Economically Active Population), by Age

Country	Contributors / Economically Active Population							
	20-29	30-39	40-49	50-59	60-69	70-79	80 +	Total
Argentina	27.1	42.1	40.1	35.7	28.1	10.8	12.4	34.6
Bolivia	7.0	12.1	13.1	11.4	6.6	5.0	6.2	9.9
Brazil	44.1	49.9	50.1	40.9	24.5	9.4	8.8	45.1
Chile	54.9	63.2	59.9	58.6	47.2	32.7	25.2	58.2
Costa Rica	56.1	53.6	48.0	42.5	25.6	7.0	25.8	50.1
Ecuador	17.8	23.0	27.0	23.5	20.1	14.7	11.5	21.9
El Salvador	33.8	34.9	30.2	23.4	12.7	7.4	7.2	29.7
Guatemala	24.2	21.4	20.9	13.3	7.7	2.3	4.2	19.6
Mexico	44.3	44.9	39.1	28.1	15.4	0.9	0.0	38.5
Nicaragua	19.9	21.9	19.7	15.3	7.3	0.5	0.0	18.1
Paraguay	13.9	18.1	14.9	9.8	5.4	3.8	0.4	13.9
Peru	9.4	16.0	16.5	17.0	13.4	9.6	7.5	13.9
Uruguay	45.8	58.8	61.1	60.2	50.1	32.4	33.4	55.3
Venezuela	34.3	38.9	37.8	31.8	18.6	13.1	4.6	35.1

Source: own, based on household surveys

Table 3. Coverage Rates, Economically Active Population (Contributors/Economically Active Population) and the Elderly (Beneficiaries/Population Age 65 or Older), by Sex

Country	Economically Active Population		The Elderly	
	Men	Women	Men	Women
Argentina	36.4	32.3	74.3	64.2
Bolivia	12.2	7.6	16.1	12.7
Brazil	46.8	42.7	80.0	76.4
Chile	60.4	54.7	72.6	57.2
Colombia			22.9	13.1
Costa Rica	50.4	49.7	59.8	75.5
Dominican Republic			15.5	5.9
Ecuador	22.0	21.8	17.3	10.8
El Salvador	29.5	29.9	18.0	9.6
Guatemala	21.6	16.1	17.0	4.6
Mexico	38.4	38.5	17.8	18.0
Nicaragua	16.9	21.5		
Panama			52.0	48.2
Paraguay	13.9	13.8	18.9	14.5
Peru	16.4	10.8	27.7	14.6
Uruguay	57.8	52.4	76.9	78.9
Venezuela	33.3	38.1	26.7	18.0

Source: own, based on household surveys

Table 4. Coverage Rates, Economically Active Population (Contributors/Economically Active Population) and the Elderly (Beneficiaries/Population Age 65 and Older), by Area of Residence

Country	Economically Active Population		The Elderly	
	Urban	Rural	Urban	Rural
Bolivia	14.2	2.5	24.4	5.1
Brazil	50.5	17.6	84.6	92.0
Chile	60.2	43.5	67.7	45.2
Colombia			27.2	6.2
Costa Rica	55.6	41.0	44.7	23.0
Dominican Republic			15.5	3.7
Ecuador	29.1	6.7	22.2	4.9
El Salvador	38.5	12.7	20.5	4.2
Guatemala	29.0	11.6	16.8	6.9
Mexico	47.4	9.7	28.8	4.8
Nicaragua	24.9	8.0	6.6	1.7
Panama			58.6	20.6
Paraguay	20.0	5.4	25.7	11.3
Peru	19.0	3.8	34.2	4.0

Source: own, based on household surveys

Table 5. Coverage Rates, Economically Active Population (Contributors/Economically Active Population), by Income Quintiles

Country	Contributors/Economically Active Population Over the Age of 20					
	Quintile I + poor	Quintile II	Quintile III	Quintile IV	Quintile V + rich	TOTAL
Argentina	1.9	5.5	32.8	61.6	71.8	34.6
Bolivia	1.4	0.5	2.9	12.2	32.4	9.9
Brazil	2.0	35.0	55.7	65.6	71.2	45.1
Chile	33.3	70.9	70.2	67.5	72.4	58.2
Costa Rica	11.3	47.9	64.9	66.5	61.9	50.1
Ecuador	6.4	6.2	21.1	34.0	44.8	21.9
El Salvador	5.1	2.6	29.1	44.4	67.4	29.7
Guatemala	0.4	1.5	13.9	35.1	47.5	19.6
Mexico	27.1	42.0	30.2	41.8	51.6	38.5
Nicaragua	3.4	13.5	19.6	26.5	30.9	18.7
Paraguay	0.1	0.8	6.6	26.1	35.7	13.9
Peru	3.7	2.0	5.9	12.8	45.1	13.9
Uruguay	5.2	34.6	66.9	80.2	90.2	55.3
Venezuela	11.1	16.3	58.4	48.8	51.3	35.1

Source: own, based on household surveys

Table 6. Coverage Rates of the Employed (Contributors/Employed Persons), by Income Quintile

Country	Contributors/ Employed Persons					
	I	II	III	IV	V	TOTAL
Argentina	4.0	18.3	47.7	68.3	71.6	40.3
Bolivia	0.3	1.1	4.1	15.2	34.0	10.9
Brazil	15.6	43.7	57.9	66.1	71.6	49.0
Chile	29.9	71.8	70.6	67.5	72.8	63.4
Costa Rica	15.9	52.0	62.6	69.2	62.4	52.1
Ecuador	6.8	6.5	21.1	37.7	45.0	23.3
El Salvador	5.7	3.3	35.1	45.9	68.7	31.6
Guatemala	0.4	1.8	15.0	36.1	47.4	19.6
Mexico	30.2	41.5	30.0	43.8	51.7	39.3
Nicaragua	3.8	14.9	20.5	27.1	31.7	19.4
Paraguay	0.1	1.3	10.1	28.0	35.0	14.8
Peru	2.0	1.8	7.4	14.2	46.8	14.4
Uruguay	17.3	55.2	74.8	85.0	92.7	65.0
Venezuela	17.9	23.1	60.9	49.8	51.4	40.0

Source: own, based on household surveys

Table 7. Coverage Rates of the Employed (Contributors/Employed Persons), by Field of Activity and Sector of the Economy

Country	Field of Activity			Wage-Earning Sector Only	
	Primary	Secondary	Tertiary	Public	Private
Argentina	28.0	33.8	42.3	66.5	50.6
Bolivia	1.9	8.5	20.0	69.3	17.0
Brazil	12.6	58.7	57.3	88.8	74.1
Chile	53.7	64.8	65.2	90.3	78.1
Costa Rica	37.0	54.2	55.5	93.9	67.9
Ecuador	7.1	22.8	31.9	81.1	39.7
El Salvador	3.5	42.3	36.7	92.0	48.4
Guatemala	8.3	26.9	25.7	73.8	48.2
Mexico	7.6	51.4	47.1	78.5	57.7
Nicaragua	3.0	29.3	25.7	78.8	31.7
Paraguay	1.4	15.4	22.1	82.2	25.5
Peru	3.3	16.8	21.4	60.2	24.2
Uruguay	58.9	53.7	68.7	99.0	71.3
Venezuela	18.1	42.6	42.5	91.4	63.8

Source: own, based on household surveys

Table 8. Coverage Rates of the Employed (Contributors/Employed Persons), By Sizes of Establishments

Country	small	medium	large
Argentina	10.5	53.7	85.5
Bolivia	2.1	29.2	39.6
Brazil	40.8	65.9	87.0
Chile	32.1	76.7	89.7
Costa Rica	17.4	67.0	89.7
Ecuador	7.3	32.6	68.9
El Salvador	7.1	41.5	84.3
Guatemala	2.7	39.4	77.6
Mexico	7.3	54.9	83.9
Nicaragua	3.1	34.7	70.0
Paraguay	2.6	41.7	66.8
Peru	3.1	19.6	56.4
Uruguay	34.9	80.9	96.5
Venezuela	6.5	53.9	84.4

Note: "Small" refers to establishments with up to five workers (except in Bolivia and Uruguay, where it refers to up to 4 workers)

"Medium" refers to establishments with between 6 and 50 workers (except in Argentina, where it refers to 6 to 40 workers; Bolivia, 5 to 49 workers; Brazil, 6 to 10 workers; Costa Rica, 6 to 19 workers; Uruguay, 5 to 49 workers; and Venezuela, 6 to 20 workers).

"Large" refers to establishments with 51 workers or more (except in Argentina, where it refers to 41 workers or more; Bolivia and Uruguay, 50 workers or more; Brazil, 11 workers or more; Costa Rica, 20 workers or more; and Venezuela, 21 workers or more).

Source: own, based on household surveys.

Table 9. Percentage of the Total Income of Households with Social Security Income, by Type of Household.

Country	Household composed by elderly persons only	Household composed by elderly persons and the young	Total
Argentina	86.7	59.8	70.6
Bolivia	79.9	50.5	55.3
Brazil	89.0	60.9	62.9
Chile	68.6	38.3	46.7
Colombia	85.9	62.3	65.1
Costa Rica	85.1	48.8	56.0
Dominican Republic	71.8	41.9	45.9
Ecuador	66.4	34.7	40.7
El Salvador	73.5	37.0	45.2
Guatemala	84.1	41.0	45.3
Panama	87.5	51.8	58.5
Paraguay	67.9	47.9	50.7
Peru	52.0	33.5	38.4
Uruguay	65.0	42.7	47.9

Source: own, based on household surveys

Table 10. Individual and Joint Coverage of the Elderly.

Country	Individual	Joint
Argentina	68.3	72.7
Bolivia	14.7	19.0
Brazil	85.9	94.1
Chile	63.8	77.3
Colombia	18.6	25.9
Costa Rica	36.6	47.9
Dominican Republic	10.9	16.0
Ecuador	15.2	21.7
El Salvador	14.5	19.4
Guatemala	11.3	16.4
Mexico	19.2	27.1
Nicaragua	4.7	16.3
Panama	45.0	54.9
Paraguay	19.6	27.1
Peru	23.7	32.2
Uruguay	87.1	94.5
Venezuela	23.9	32.3

Source: own, based on household surveys

METHODOLOGICAL APPENDIX

The study's input data comes from household surveys of 17 countries of Latin America. Though these surveys differ in terms of their geographic coverage and other elements, they nonetheless make it possible to apply a standardized conceptual framework and standard definitions for calculating coverage levels of social security systems in Latin America.

Country	Survey Name	Geographic Coverage	Period
Argentina	**Ongoing Survey of Households – Expanded User Base**	**Urban**	**4th Quarter 2003**
Bolivia	**Household Survey, Mecovi Program**	**National**	**Nov-Dec 2002**
Brazil	**National Household Survey by Sampling**	**National**	**Sep 2001**
Chile	**National Socioeconomic Survey**	**National**	**Nov 2003**
Colombia	**Continual Survey of Households**	**National**	**Sep 2002**
Costa Rica	**Multi-Purpose Household Survey**	**National**	**Jul 2000**
Dominican Republic	**Panel Survey of the Labor Force**	**National**	**Oct 2003**
Ecuador	**National Survey on Employment, Unemployment and Underemployment**	**National**	**2nd half 2003**
El Salvador	**Multi-Purpose Household Survey**	**National**	**Feb-Dec 2000**
Guatemala	**National Survey on Living Conditions**	**National**	**Jul-Nov 2000**
Mexico	**National Survey on Income and Household Expenses**	**National**	**Aug-Nov 2000**
Nicaragua	**National Household Survey to Measure the Standard of Living**	**National**	**Apr-Jul 2001**
Panama	**Household Survey**	**National**	**Aug 2000**
Paraguay	**Integrated Household Survey**	**National**	**Sep 2000 to Aug 2001**
Peru	**National Household Survey**	**National**	**Oct-Dec 2002**
Uruguay	**Ongoing Household Survey**	**Urban**	**2001**
Venezuela	**Household Survey by Sampling**	**National**	**2nd half 2000**

Given that the definitions of economic activity status, the geographic scope considered, and the concept of coverage used by prior studies vary from country to country, the coverage indicators are not exactly equivalent. Furthermore, a comparison of indicators derived from local studies overlooks the fact that workers in certain occupational categories are not entitled to social security benefits in all countries (for example, the laws differ on the treatment given to household workers and the self-employed). As such, the measurement of coverage called for by the legal criteria also differs.

In order to sort out these obstacles, this study focuses measuring national levels of coverage[11] and considers all persons to be potentially eligible for social security protection who are over the age of 20—for the economically active phase—or who are over the age of 65—for the beneficiary stage.

Although the definition of the Economically Active Population usually includes individuals approximately 15 years of age or older, we have not used this reference group and prefer to define the Economically Active Population as starting at age 20 for various reasons. First, majority age is explicitly required to participate in social security systems. This definition also considers the quality of the information presented on child and adolescent employment and the customary age at which an individual is expected to take responsibility for supporting himself. The justification of the age bracket for the elderly is much more direct: the majority of legislations indicate 60 or 65 as the age for receiving retirement benefits. We chose to work with the "over the age of 65" bracket in order to keep the coverage indicator for the elderly from being distorted by these age-requirement differences from one country to another. Additional information on determination of the coverage indicators is presented below.

COVERAGE IN THE ECONOMICALLY ACTIVE STAGE

When analyzing general levels of coverage in the economically active stage, we defined three indicators of interest: (i) contributors/economically active individuals (ii) contributors/employed persons, and (iii) contributors/wage earners.

The first two indicators are known as "coverage of the labor force" and "occupational coverage." One measures the degree of social security protection enjoyed by the labor force, while the other recognizes the existence of a group of persons who are not employed and therefore not so entitled. The third indicator of "coverage for wage earners" could be called legal coverage, since the laws coincide in recognizing entitlement to social security and call for mandatory participation of wage earners in the pension systems (with some exceptions, such as household employees in El Salvador). On the other hand, there are variations to the treatment given to the self-employed: in Bolivia, Chile, Colombia, the Dominican Republic, Mexico, and Peru, their incorporation is voluntary, while in Argentina and Uruguay it is legally mandated.

In order to standardize criteria for defining the ratios, we consider the "economically active population" to be individuals over the age of 20 who are employed or are actively seeking employment. Employed persons are defined as those over the age of 20 who are engaged in some form of work, whether paid or unpaid during the reference week of the survey, or who may not have worked (due to vacations, medical leave, etc.) but do have

[11] With the exception of Argentina and Uruguay, which only provide information for the urban area.

employment to which they are expected to return. We also include those who describe themselves as underemployed in this category. Our definition of wage earners includes workers and employees of the public and private sectors, as well as household employees. Finally, the self-employed include employers, whether or not they receive wages, those who work for themselves with or without business premises, farm hands, day laborers, and members of labor cooperatives.

It is, in fact, relatively easy to standardize the basis for the coverage indicator. That is hardly the case, however, for information on participation in the system. The surveys pose different types of questions to elicit that information: whether benefits are received at work (Argentina, Mexico, Uruguay, Venezuela), whether contributions are being made into the pension system (Brazil, Chile, Peru[12]), whether contributions are being made into the social security system (Costa Rica, Ecuador, El Salvador, Guatemala, Nicaragua), whether the person is enrolled in the pension system (Bolivia, Paraguay), or no question whatsoever is asked (Colombia, Dominican Republic, Panama). Due to these differences, the coverage indicator for the first three groups of countries responds to a definition of coverage as the making of contributions, while in the case of Bolivia and Paraguay a coverage indicator is obtained in terms of enrollment. Nonetheless, when the results obtained in Bolivia and Paraguay are compared to the recorded data available, it is seen that, in practice, the information gathered corresponds to contributors and not to anyone who at one point was enrolled.

Differences are also seen in terms of which persons were asked the question regarding the pension systems: employed persons (Brazil, Chile, Guatemala, Nicaragua, Paraguay, Uruguay), employed persons, with exceptions (El Salvador), wage earners (Argentina, Mexico, Venezuela), or anyone (Bolivia, Costa Rica, Ecuador, Peru). All things considered, taking into account that the number of unemployed persons who contribute to the pension systems is low, the distortions to the results for the ten countries that did not ask the question to all economically active persons are minor.

[12] In fact, Peru asks, “are you currently enrolled in a pension system?” Given that enrollment is a permanent characteristic, one would interpret “currently enrolled” to refer to the act of making contributions to the pension system. The information obtained from this question coincides with the statistics reported on pension-system contributors.

COVERAGE AMONG THE ELDERLY

Two ratios were defined to analyze coverage among the elderly: (i) pension recipients/ individuals over the age of 65, (ii) individuals residing in households with pension recipients/individuals over the age of 65.

The first ratio responds to the traditional definition of coverage for the elderly: the proportion of persons who receive income from pensions. The second indicator, known as "joint coverage," also recognizes those cases in which social security protection is available through the retirement-benefit income of one's spouse.

When the traditional indicator of coverage was developed, pension recipients were identified based on variables regarding the receipt of income from pensions. Such questions were preferred over those relating to the condition of being a retired person/ pensioner, to eliminate those cases in which an elderly person withdraws from the labor market without receiving any type of benefits, and declares that he or she is retired, even though he/she does not receive benefits. The information on income from pensions and retirement benefits was captured using three question formats: (i) source of income (Argentina), (ii) whether the person is receiving income from pensions (Brazil, Ecuador, Guatemala, Mexico, Nicaragua,[13] Peru, and Venezuela) (iii) the amount of income from pensions (Argentina, Bolivia, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Panama, Paraguay, Peru, and Venezuela). The quality of the information gathered using the first two formats is better, since cases were identified in which the individuals state that they receive a pension but they can't remember the amount. In countries where the amount of the pension is the only source of information on the condition of being a pensioner, coverage would be underestimated.

SPECIFIC INDICATORS OF COVERAGE

In order to better understand the coverage of the pension system, indicators were examined for different ranges of age, gender, geographic area, occupational category, sector where employed, company size, and income quintile.

First, coverage indicators were calculated considering 10-year **age intervals** for persons in the economically active stage (20 or more) and 5-year **age intervals** for the elderly (65 or more). Then, coverage for men and women were considered separately.

With respect to **geographic area**, coverage levels were estimated in the urban and rural areas of each country. Unlike other countries, the surveys from Mexico and Peru did not include an indicator for urban vs. rural areas, and those indicators had to be constructed based on information regarding population strata, using the definition of urban provided by the statistics office of each country: population greater than 2500 inhabitants in the case of Mexico and population settlements with more than 400 housing units or 2000 inhabitants in the case of Peru.

[13] Nicaragua reports pension income as a subcomponent of the category of other family income. Nonetheless, an indicator of the type of other income is provided, making it possible to distinguish it from the rest.

In the case of **occupational category**, the surveys gathered information with varying degrees of detail. In order to make these categories more comparable, individuals were categorized into 5 groups: (i) independent or self-employed, (ii) white-collar workers and laborers employed in the public sector, (iii) white-collar workers and laborers employed in the private sector, (iv) other white-collar workers and laborers, and (v) unwaged workers. The first category included business owners with and without wages, self-employed workers with and without business premises, cooperative members (Bolivia, El Salvador, Mexico, Nicaragua, Uruguay) and day laborers (Ecuador, Mexico). The second category included government agencies, government-owned companies, the armed forces, and law enforcement (Brazil, Chile, and Peru), autonomous and municipal governments (Nicaragua). The fourth category was comprised by household employees, workers of non-governmental organizations, services (Peru), outsourcing workers, and workers in the *maquila* industry, that is, light-assembly-for-export (Ecuador). Finally, the fifth category includes workers or family members who are not remunerated and workers involved in production for self-consumption or in construction for their own use (Brazil).

A similar method was used for analyzing **coverage by sector**. Three major categories were defined (i) Primary sector, (ii) Secondary sector and (iii) Tertiary sector based on the UIIC classifications (Uniform International Industrial Classifications) adopted by all countries, but with variations in the degree of disaggregation.

With respect to the **size of companies**, differences were seen in the manner of reporting the information. It was therefore decided to categorize company size into three groups: small, medium, and large. The first group was comprised of establishments with 5 workers or less, the second with establishments employing 6 to 50 workers, and the third with 51 workers or more. Nonetheless, in several countries these limits had to be corrected, due to a lack of availability of the information. The following table lists the intervals used for each country.

Country	"Small" Establishments	"Medium" Establishments	"Large" Establishments
Argentina	**1 to 5 workers**	**6 to 40 workers**	**More than 40 workers**
Bolivia	**1 to 4 workers**	**5 to 49 workers**	**More than 49 workers**
Brazil	**1 to 5 workers**	**6 to 10 workers**	**More than 10 workers**
Chile	**1 to 5 workers**	**6 to 50 workers**	**More than 50 workers**
Costa Rica	**1 to 5 workers**	**6 to 19 workers**	**More than 19 workers**
Ecuador	**1 to 5 workers**	**6 to 50 workers**	**More than 50 workers**
El Salvador	**1 to 5 workers**	**6 to 50 workers**	**More than 50 workers**
Guatemala	**1 to 5 workers**	**6 to 50 workers**	**More than 50 workers**
Mexico	**1 to 5 workers**	**6 to 50 workers**	**More than 50 workers**
Nicaragua	**1 to 5 workers**	**6 to 50 workers**	**More than 50 workers**
Paraguay	**1 to 5 workers**	**6 to 50 workers**	**More than 50 workers**
Peru	**1 to 5 workers**	**6 to 50 workers**	**More than 50 workers**
Uruguay	**1 to 4 workers**	**5 to 49 workers**	**More than 49 workers**
Venezuela	**1 to 5 workers**	**6 to 20 workers**	**More than 20 workers**

To evaluate coverage by **income quintiles,** total-income quintiles were generated for economically active workers, the employed and wage earners, and then coverage was considered by quintile for each group.

Finally, the study evaluated the share that retirement benefit pensions played in the total income of households. In order to detect that, an indicator was calculated defined as **household income from pensions as a percentage of total household income** (Y-pensions-h/Y-total-h), and the indicator was reported based on the family structure of the household.